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EYE CASES FROM ORAL SEPSIS*

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Eye disease of oral origin is far more common than generally supposed. The ophthalmologist who is careful in searching out his obscure cases will attest that it is surprising to note the number of cases that are associated with and are due to infections within the mouth. We often neglect to examine the teeth as the cause of many of our eye diseases, although it has long been known that suppurative processes of dental orign are frequently the cause of inflammatory eye diseases.

How is the infection transmitted to the eye? In a report of 53 cases studied at the Herman Knapp Memorial Eye Hospital in one year Levy reports that 52 of the 53 cases studied showed the affected eye on the same side as the infection in the mouth. This leads to the belief that the infection is not always transmitted through the blood stream, or more cases would have been found in the eye opposite to the dental infection. The conclusions of Levy are that the infection is carried either through the lymphatics or through the osseous channels. Numerous other theories are advanced. Polet thinks that in addition to the subperiosteal and os eous channels, infection is transmitted along the nerves. Another believes that infection can be carried from the dental alveolus through the a l v e o l a r plexus and the pterygoid plexus into the ophthalmic vein and cavernous sinus. Ulrich and Dinimer believe that the infection is always hematogenous, because the lymphatics of the mouth drain into the mandibular and cervical glands.

A direct extension through the venous channels from the diseased area to the cavernous sinus is anatomically possible and unquestionably has produced sinus thrombosis and its symptoms. The method of transmission is still a debated question.

It would seem from literature that no part of the eye is immune to disease of oral origin. We may have ulcer of the cornea, keratitis, irido-cyclitis, retinitis, choroiditis, detachment of the retina, neuritis, episcleritis, abscess of the lids, orbital cellulitis or in fact every tissue of the eye may be involved, although by far the greater number of cases show the iris, ciliary body, choroid or conjunctiva to be affected. These diseases may occur in either acute or chronic form.

Brown and Irons, in their excellent paper on "The Etiology of Iritis," excluded peridental infection (this would exclude pyorrhea) which in the minds of many is the most frequent cause of ocular lesions, ranking higher than blind abscesses, septic roots or periapical abscesses. Opposed to this view is Lawler, who maintains that pyorrhea itself is a very *infrequent* cause of ocular infection. He bases his opinion on the fact that careful treatment of the mouth has failed to exert any favorable action on the ocular condition, especially in cases of scleritis and keratitis.

I am strongly of the opinion that pyorrhea is a frequent source of eye lesions, and drastic treatment is warranted in these cases, and if necessary all foci of disease should be removed by the extraction of the offending teeth. There are many remedies for phyorrhea, but the most effective one is the removal of the teeth.

It is our duty in all obscure eye cases to examine the teeth. In doing this we will find one of three things. We will find teeth that are plainly pathological, we will find teeth that are plainly normal, or we will find teeth that are doubtful. The plainly pathological cases and the doubtful ones should be referred to a dentist with request for a complete examination and

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pictures made not only of the teeth manifestly diseased, but of all the teeth, for sometimes we will find abscessed teeth that were not suspected. It is not wise to condemn unreservedly all dead teeth and the X-ray furnishes us with fairly dependable means of knowing those diseased teeth of this type. Often vital teeth will go unsuspected without a picture. On the other hand a negative picture of simply suspected teeth is not sufficient to exclude dental sepsis. We do not unreservedly condemn teeth. This occurs only when X-ray examinations are not made or to the disbelief of doctors in the value of such pictures. There is no excuse for th's practice, if all dental films were passed upon by a competent dentist. One who is able to make and interpret his picture, this mistake would seldom occur. Under no circumstances should teeth be needlessly sacrificed, but when all evidence points to the teeth being the source of the infection they should be given immediate attention. As Dr. Beaumont says it is better to lose 32 teeth than one eye.

Mrs. R., age 62 years, came to me one year ago complaining of dimness of vision in the left eye. She stated that during the year previous she had been under the care of an internist who had searched for some constitutional trouble, the nature of which he failed to find. She underwent a number of examinations and was subjected to all the known diagnostic tests. Her malady failed to clear up. An examination of the eye disclosed a beginning uveitis with infiltration of the vitreous with some secondary iritis. Her teeth had all been extracted by a very competent dentist and we were assured that no local infection could exist. In spite of active treatment with atropin and dionin conditions grew worse. Exudates appeared on the posterior surface of the cornea. The iris developed several adhesions to the capsule of the lens and the vision was much reduced. On conviction that there was some necrosed bone on the left side, I asked for an X-ray picture, which disclosed a root from the left upper molar. This was removed and in a comparatively short time the eye was quiet and the vision became normal. This case shows the value of X-ray even in cases where the dental infection was supposed to be removed.

Another case—a boy, age 14, came with a mild type of choroiditis of obscure origin in the right eye. He had no evidence of syphilitic or tubercular infection and except for the eye condition was apparently healthy in all respects. The influence of dental sepsis in this case was not suspected and no investigation was made at this time of the teeth. In six months the case came back with the choroidal lesion much developed. A careful examination was made of his teeth. A number of infected teeth on the left side were found from which a free discharge of pus could be obtained. These were extracted and the drainage from the roots—their bony cavities were most remarkable. The pupil began to react to atropin and signs of asorption of the inflammatory exudate and lessening of the ciliary congestion were evident. For awhile the eye made steady improvement and it was hoped the infection had been checked, but it soon became apparent that it was the seat of a deeper infection and this was rapidly followed by the active stage of panophthalmitis which finally necessitated its removal. The exceedingly rapid suppurative choroiditis in this case could only be attributed to the very virulent suppurative process in the dental region. I have been impressed lately with the fact that oral sepsis may be the cause of some cases of conjunctivitis with ulcers.

I have had two bad cases within recent period and in both cases the infection might readily have come from dreadfully septic mouths.

Some writers have made the suggestion that senile cataract is due to toxaemia, especially from the teeth. The two conditions are of course constantly associated in elderly people and you will be impressed by the number of cataract cases in which the oral sepsis is very bad. It is only a short step from premature rigidity of the lens to its actual opacity. The one condition certainly does occur. Why not the other as a direct result of old standing poisoning? This question can probably only be solved by the method of statistics. But I believe there is a substantial foundation on which to build. I will say that since my attention has been called to this I have seen very few cases of senile cataract in persons with good sets of teeth, and where lens opacities are present they advance very slowly.

In concusion may I say that we, as specialists, should examine the teeth in all cases of inflammatory eyes and premature presbyopias for a possible and quite probable source of infection.

INTRAOCULAR FOREIGN BODIES*

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Every perforating wound in the eyeball is serious, not only because there is always danger of infection being carried to the contents of the eye, followed by abscess or destruction, but there is always the danger that a foreign body remains. No matter how small the foreign body may be or where it is located, the condition is serious, and only too often means loss of the eye.

With the great increase in all forms of industry throughout the country, and in spite of all precautions taken for prevention of injuries, there is probably a constant increase in the number of accidents to the eyes. In our own state, the oil industry contributes the greatest number of such accidents because of the great number of workers with iron and steel in the building of tanks, pipe lines and various other departments of the work. Also in the use of dynamite where carelessness or premature explosions, trap men in the range of flying particles, not only of metal but rocks, splinters of wood, dirt, etc. On the farms, with all kinds of farm machinery, the accidents are becoming much more frequent.

While we have no intention of dwelling on foreign bodies embedded in the layers of the cornea, in passing I wish to emphasize the necessity of treating every such wound strictly surgically and to discourage the practice, in our industrial plants, of attempts at removal.

Dirty hands, equipment such as horsehair, tooth picks, pocket knives, etc., contribute greatly in producing destructive ulcers which end in loss of the eye. It is just as important to use clean methods in corneal injuries as in any other branch of surgery. Any infection means more or less of a scar which, no matter how slight, interferes with the visual acuity.

To make an attempt to take up the subject of intraocular foreign bodies, with any degree of thoroughness in a short paper is almost impossible.

Foreign bodies of all sorts may be injected, through accident, into the eyeball, and all are almost equally dangerous unless removed. Where they carry infection, as is so often the case, the trouble starts almost at once, but in innumerable other cases the trouble is caused from the presence of the foreign body itself, which instead of lying dormant or peaceful, sets up frequent inflammatory attacks which sooner or later necessitates removal of the eye. In some instances to relieve the almost constant pain, but in others to prevent the possibility of sympathetic involvement of the other eye.

All types of foreign bodies are encountered in eye injuries and they are found in all parts of the globe. If located in the anterior chamber or in the lens, they can, as a rule, be seen and located without much trouble, unless in the case of a very small spicule of glass, which is very easily overlooked.

In other parts of the eye, many difficulties arise. The eye may be filled with blood, or an early exudate will interfere with observation with ophthalmoscope, an indispensable aid in localization. The X-ray in the hands of an expert is of the greatest help in localization, but unless properly used is very misleading. If any attempt at removal is made in vitreous foreign material, except in the case of magnetic objects the exact location is absolutly necessary, and even in the case of steel and iron, your procedure is simplified and offers more chance of success if properly located. Fishing jobs in the vitreous at best are extremely difficult and frequently fail, as well as only too frequently are followed by loss of the eye, even if you make a successful removal.

Dr. J. M. Patton of Omaha, associated with the Gifford Clinic, in the American Journal of Ophthalomology, February, 1927, has a very interesting article showing the mistakes often made in geometric localization and offering a method to prevent, in a great measure, mistakes made in those cases where ocular rotation may occur without detection. Very small flexible wire rings are fastened through the conjunctiva near the limbus before the X-ray is used and easily removed afterwards without any injury to the cornea. Where geometric localization is available, these rings are a great help in preventing mistakes by rotation during exposure. After definitely determining the position of the object and the material of which it is composed, an attempt at removal should be made at once, unless septic iridocyclitis or general sepsis has taken

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place. In such cases enucleation is always indicated at once.

If the foreign body is imbedded in the lens, it will probably be better to allow the cataract to completely form and then remove the entire lens. Where objects are located in anterior chamber, the procedure of removing is simplified greatly. If magnetic, the magnet will draw through the original opening if early, as a rule. If not, a small opening is made through the cornea near the limbus and the magnet applied. Where the object is embedded in the iris and cannot be disentangled with the magnet, an irridectomy including the object, had best be done. Frequently if posterior to the iris by directing the magnet tip in a position to dislodge, it can be coaxed out through the pupil and into the anterior chamber where it is removed as before. In non-magnetic objects, it will be necessary to make a larger opening in the cornea when a very small pair of forceps or hooks, will be used for removal.

In the last two years we have had two cases where an eye lash has been forced entirely through the cornea, lying loosely in the anterior chamber. These were removed by making an opening and extracting the hair with small forceps.

The greatest difficulty is with small particles of glass. It is frequently impossible to see and the X-ray fails to throw a shadow in most types of glass. The best way to detect glass which is lodged in the cornea, either superficially or deep, is with the slit lamp, if available.

Where the foreign body is in the vitreous, the condition is generally more grave and the prognosis, of necessity not so favorable. Occasionally, if magnetic, the object can be removed by the anterior route, by carefully using traction from the magnet along the course of entry. However, we have not advised this procedure, not only, owing to the difficulty in most all cases, but the additional trauma is probably more dangerous than the complications which may arise from the posterior or scleral removal.

By being very careful with the scleral opening, infection can be reduced to a minimum, then the greatest danger is from post operative retinal detachment. Unless there is already a scleral opening, which is rare, it will be necessary to make an opening. Select a point as nearly as possible to the location of the foreign body, back of the ciliary body and between the muscle attachments. Make the conjunctival flap in such a position that the scleral wound can be thoroughly closed. By drawing this flap well back, the opening in sclera should be from before backward to prevent undue gaping and escape of the vitreous. If magnetic, the opening should be as small as possible, the point applied to the opening when practically always the operation is successful.

The smaller the opening in the retina and the less trauma produced, the less danger there will be of detachment, so that great care should be exercised in the incision and manipulation with the magnet.

If the vitreous foreign body is not magnetic, it may be possible to remove with forceps or small spoon, if definitely located. However, this is very difficult and in the majority of cases, will likely fail. The conjunctiva should be very carefully stitched over the opening, keeping your stitches well away from the scleral wound. If the scleral wound is very large you may close it with fine sutures in the superficial layers, being careful not to go through the entire thickness of the coat.

Following the removal of a foreign body from the eyeball, the patient should always be put to bed, a mild mydriatic instilled and absolute rest required for a few days.

If attempts at removal of the foreign body fails, you may sometimes delay enucleation for a time to see whether or not the eye will tolerate it without any inflammatory signs. When this experiment is decided on, frequent observation of the eye must be insisted upon. If there are signs of inflammation even of low grade, there will surely be some vitreous exudation which will interfere with the retinal function.

If by making frequent tests of vision, there is shown a gradual shrinking of the field with loss of light perception, together with a loss of normal tension, indicating a shrinking of the eyeball, enucleation must not be delayed, as there is always the possibility of sympathetic inflammation in the other eye.

In quite a percentage of penetrating injuries from foreign bodies, the lens is injured sufficiently to produce a gradually increasing opacity, with a complete cataract resulting.

When this occurs, if you have been successful in removing the foreign body you are faced with the problem of how best to

advise and handle the case. In this respect there is some difference of opinion and a number of things must be taken into consideration. The removal will undoubtedly increase the field of vision, even though objects are seen indistinctly. The cataract may become hypermature and difficult to remove. The eye presents a more natural appearance which frequently relieves embarrassment in sensitive individuals. This is more particularly true in women. To off set this there may be visual confusion of an annoying character, more noticeable in the older cases.

The diplopia, met with in numbers of cases, may be ignored in time, but in some cases, is permanent. A number of these eyes deviate, but I rather think, no more so, than where the cataract remains. A correcting glass cannot be worn as long as the other eye remains normal.

Fuch's states that where a traumatic cataract has been produced and later successfully operated upon, and the visual acuity brought to normal by a correcting lens, the eye is not adapted for binocular vision. Without the correcting lens, the eye sees too little and if the other eye has normal sight, the correcting glass is not borne. In such a case, therefore, binocular vision is abolished, in spite of there being an absolute visual power in both eyes.

So many of these accidents are industrial cases and the percentage of permanent visual defects must be determined. There is no doubt much injustice is being done to both employee and employer, in incorrectly estimating the disability.

In certain forms of service, the earning capacity is interferred with very little, even though the eye may be lost entirely, but the laws in this country fail to make any difference in estimating the disability.

In cases where there is only partial disability soon after injury the latent disturbances in the equilibrium of the eye muscles may become manifest and the eye squint. If this happens, the binocular single vision will be abolished and you can readily see there will be a decided difference in the percentage of loss of industrial vision, where there is a complete opacity of the lens, whether successfully operated or not, it is our contention that there is an industrial loss of vision in that eye. The vision without the glass is too little to be of any great use and if the injured person is unable to wear the correcting lens, even though it gives normal vision, it cannot be taken into account to the detriment of the injured man's claim.

The subject of traumatic cataract is brought up in this paper because so many of the foreign body cases are complicated by injury to the lens, and as so many of the injuries are in industrial cases, we are called upon to determine the percentage of visual loss in establishing compensation.

The law fixes the compensation in most states on uncorrected vision and in these cases with rarely more than 20-260 vision and unable to wear the correction, we must confess total loss of one eye, even though the field may be increased.

AN ABSTRACT OF THE LITERATURE ON TULAREMIA WITH A LABORATORY REPORT ON THREE CASES OF TULAREMIA FROM OKLAHOMA DIAGNOSED BY THE AGGLUTINATION TEST.

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Definition and Historical: In the last ten years Dr. Francis has through assiduous study and an overwhelming interest in tularemia made remarkable progress in this disease, the cause of which was unknown to bacteriologists and a mystery to the medical profession.

Tularemia, as Dr. Francis describes it, is "a specific infectious disease due to *bacterium tularense* and is transmitted from rodents to man by the bite of an infected blood-sucking insect or by the handling and dissecting of infected rodents by market men or laboratory workers."

The disease was first described by Dr. Ancil Martin of Phoenix, Ariz., in 1907, who called it a rabbit septicemia. In October, 1910, Dr. R. A. Pearse read a paper on the disease before the Utah State Medical Association. In Utah tularemia had been known as deer fly fever because it was thought that the disease was due to the bite of the blood-sucking fly, chrysops discales, which is found on horses. In the next ten years, 1910 to 1920, Francis and Mayne proved that the deer fly was a carrier of the disease. Among the pioneers in the field who attempted to get at the cause of

tularemia were McCoy and Chapin. They discovered and named the organism which was the cause of a tularemia epidemic in Tulare county, Calif., among ground squirrels in 1912. Credit for observations on the first human case is given to Vail and Sattler in 1913 and 1914. Bacterium tularense was isolated from these cases by Wherry and Lamb by inoculating the conjunctival secretions into guinea pigs. In 1919 and 1920 Francis isolated B. tularense from severe human cases and 17 jack-rabbits and named the disease tularemia after Tulare county, Calif., where the pioneer work of McCoy and Chapin was done on ground squirrels.

Carriers of tularemia: Insects and animals play important roles in the transmission of tularemia. Among the most important carriers are:

1. Ticks: These insects carry the organism from rabbit to man, and rabbit to rabbit and help perpetuate the disease. Adult wood ticks, dermacator andersoni, were collected in May, 1923, from vegetation in Montana. These, when injected into guinea pigs, caused acute death with typical lesions from which B. tularense was isolated on culture. Nymphal ticks which had been infected as larvae by feeding on guinea pigs infected with tularemia transmitted the disease to healthy animals as late as 247 days after they had fed on the sick animals. Adult ticks have been known to carry the infection for 199 days after they have fed on infected animals. Another reason why ticks are so dangerous as carriers of tularemia is that the disease is transmitted by the females to the eggs and persists throughout the larval and nymphal stages. The tick is considered a true biological host of tularemia because it harbors B. tularense in the epithelial cells of the digestive tract, the malpighian tubes, and coelomic fluid. The organism is absent however from the salivary glands.

2. Bedbugs: The bedbug is not ordinarily a carrier of tularemia. In the laboratory this pest will carry the plague from one mouse to another mouse, but no human cases have been recorded where the bedbug was carrier. Mice devour living and dead bedbugs and in that way become infected. Few infections result from bites.

3. Meadow mice: The infection among meadow mice is spread by the mites which these animals are infested with.

4. Birds: At one time it was observed that ruffed grouse and rabbits died in great numbers during the same season. The rabbit tick, haemaphysalis leporis-palustris, is the important carrier here. It is found on game birds and grouse. These animals acquire the disease like guinea pigs and rabbits in the laboratory.

5. Ground squirrels: Tularemia was first known to occur as an epizootic among ground squirrels.

6. Rabbits: The greatest reservoir and source of human infection is the wild rabbit. Jack-rabbits, cottontails, and snow shoe varieties all carry the disease. These animals acquire tularemia from flies, ticks and other blood-sucking agents which transmit the infection to them by biting them. Tularemia also occurs as an epizootic among rabbits.

7. Miscellaneous carriers: Francis reports that wild rats carry tularemia. He had one case which was traced to a bite from a coyote, another to a bite from a hog, six were associated with sheep and the ticks infesting them which had become contaminated around the mouth parts by feeding on rabbits found dead nearby.

Seasonal Incidence of Tularemia and Source of Infection: The seasonal incidence of tularemia is due to the seasonal variation in the tick bite, fly bite, and the dressing of wild rabbits. But because these causes overlap tularemia cases are prevalent all the year round.

1. Fly bite: June to September is the season of greatest activity of the horse fly in Utah and the surrounding states.

2. Tick bite: From March to August ticks are most active in Montana, Arkansas, Texas, Oklahoma and Louisiana.

3. Dressing of wild rabbits: East of the Mississippi river November, December and January is the "open season" for game hunting. Cotton-tails are dressed for food and fed to domesticated animals also. West of the Mississippi river jack-rabbits are considered pests and are not protected by game laws. In this locality April to October marks the onset of tularemia. It is the season for skinning jack-rabbits for table use, fish bait and coyote bait.

Tularemia has never been found in mature in domesticated animals, or in those raised in rabbitries.

Market infections: In the winters of 1923, 1924 and 1925, Francis examined the

livers of 1000 rabbits and found nine or less than 1 per cent infected with tularemia. Infected livers are studded over the surface with small spots varying in size from a pin point to 1-16 inch in diameter. Of 22 cases reported 17 had dressed wild rabbits from the market. Four dressed rabbits they had shot, and one dressed a rabbit killed with a club. Cases of tularemia have been reported in uninfested areas like Chicago and are usually traced to the dressing of rabbits. The highest incidence of tularemia occurs among butchers and poultrymen. These people dress hundreds of rabbits in a season and often have scratches and cuts on their hands thus providing a portal of entry for the organism.

Distribution and Mortality: In 1920, of the 420 cases reported to the public health service, 17 died, giving a mortality of 4 per cent. Up to that date cases had been reported from 37 states, Washington, D. C. and Japan, where tularemia is known as Ohara disease. No cases have as yet been reported from the nine northeastern states. From its distribution tularamia appears to be an almost entirely American disease. Ohara is trying to show that tularemia and Ohara disease are closely related or perhaps the same disease. He found that B. tularense and the Ohara-Haga coccus resemble each other in many respects, and that the lesions they produce in laboratory animals are similar. B. tularense agglutinated strongly the serum from a patient with Ohara disease.

Degrees of Susceptibility:

1. High in man, monkeys, ground squirrels, rabbits, guinea pigs, mice, wood chucks, opposums and young coyotes.

2. Slight in rats, sheep, cats and goats.

3. None in horses, cattle, hogs, dogs, pigeons and chickens.

Clinical Types of Tularemia: Usually an infection due to a rabbit comes from an injury on the hand which provides a portal of entry for B. tularense. There are, according to Francis, four clinical types of tularemia:

1. Ulcero-glandular where a primary lesion or papule which later becomes an ulcer develops on the infected spot and is accompanied by enlargement of the regional lymph glands.

2. Occulo-glandular with the primary lesion a conjunctivitis accompanied by an enlargement of the regional lymph glands.

3. Typhoid type which runs a persistent fever with no primary lesion.

4. Glandular type with no primary lesion but enlargement of the regional lymph glands.

The most common types are the ulcero-glandular and the typhoid.

In the ulcero-glandular type the incubation period is from 2-5 days. The onset is sudden and is manifested by headache, chills, pains, vomiting, prostration and fever. Forty-eight hours after the onset the patient has pain in the area of the regional lymph glands which become tender and slightly enlarged. About 24 hours after glaudular pain sets in the lesion on the site of infection swells and becomes an inflamed papule which steadily breaks down liberating a necrotic core and leaving an ulcer about 1-4 inch in diameter with raised edges and a punched out appearance. Fever lasts two to three weeks and may reach 104 deg. F. The glands may break down or remain hard, palpable and tender for two to three months returning gradually to normal. The blood count is of no diagnostic value although it may show a slight lymphocytosis. Agglutinins are absent in the blood in the first week of the disease. They appear in the second week and in the third and fourth weeks the maximum agglutination titer has been reached. Then there is a decline but the agglutinins persist for years. Convalescence is protracted and attended with weakness which is conspicuous symptom. For complete recovery six months to a year is needed. Death is rare.

The typhoid type has been known to occur only in laboratory workers. There is no site of infection or enlarged glands. Otherwise it is like the glandular type. Everyone who has worked with B. tularense has become infected. The portal of entry in these cases is supposed by Francis to be the unbroken skin of the hands. Francis was able to infect guinea pigs with tularemia by gently placing some spleen juice from an infected animal on the unclipped, unshaven, unabraded and unrubbed skin.

Bacteriology of Tularemia: Tularemia is caused by the *bacterium tularense*, a rod shaped organism 3-7 mu. in length and 2 mu. wide. In the body tissues it seems encapsulated. It grows scantily on serum glucose agar, glucose blood agar and blood agar unless a piece of spleen tissue is added. Then there is an abundant growth. It

needs a Ph. of 7.3. Francis believes that "coagulated egg yolk, carefully prepared is still the best medium for routine isolation and cultivation of B. tularense." Pus from broken down glands, conjunctival secretions and curettements from ulcers injected into laboratory animals will yield cultures of the organism. Pure cultures of B. tularense can be isolated from the blood, spleen, liver and lungs of animals dead with tularemia.

Diagnosis of Tularemia: To diagnose tularemia the following points should be kept in mind:

1. History of contact with rabbit, fly or tick.

2. Primary lesion of skin followed by ulcer, or conjunctivitis, followed by ulcers.

3. Persistent glandular enlargement in the region drawing infection.

4. Fever of two to three weeks duration.

Microscopic examination of cover glass preparations and cultures directly from the patient are useless for diagnosis. The final diagnosis of tularemia rests on the isolation of B. tularense from guinea pigs inoculated with material from the lesion, glands, or blood of the patient; or on the agglutination of a stock culture of B. tularense with the patient's blood serum. This is a reliable test and is used by the Hygienic Laboratory of the U. S. P. H. S. as a routine test on suspected sera. In a case reported by Brosius the patient's serum agglutinated B. tularense in a dilution of 1:160 eighteen years after infection.

Technic of the Agglutination Test: The complete technic is given in the Public Health Reports for June 25, 1926. Because of the frequent cross agglutination between tularemia, abortus and melitensis, suspected sera of tularemia or undulant fever should be tested for agglutination with B. tularense and either abortus or melitensis, unless the clinical history is definite. The highest titer is decisive. On serum which agglutinates all three organisms an agglutinin absorption test should be done. Dr. Francis found that normal rabbit serum and serum from rabbits immunized against typhoid, paratyphoid fevers, and sheep cells did not agglutinate B. tularense. Sera from patients with typhus, tuberculosis and syphilis do not ordinarily agglutinate B. tularense.

Treatment is Symptomatic. Rest in bed is most important. Enlarged lymph glands should be incised only after suppuration has been well established. So far no vaccine or curative serum or drug has been found which will cure tularemia.

Prevention: There is at present no prophylactic for tularemia. An attack of tularemia confers immunity in man, but for how long a period is not known. Francis reports the case of a laboratory worker who got a second infection two years and five months after the first.

A few ordinary precautions can be taken by most persons to prevent tularemia:

1. Rabbit meat well cooked is harmless. A temperature of 65 deg. C. or 133 deg. F. kills B. tularense.

2. Ordinary disinfectants are effective against B. tularense.

3. Rubber gloves should be worn when dressing wild rabbits or if possible an immune person should be employed.

4. Infected rabbits which have been frozen for 30 days are harmless.

5. Market inspection is not very practical because only 10 per cent of the rabbits on the market have the liver left in place.

6. The wild rabbit which a cat or dog brings in or which a boy kills was probably sick and should be left alone. Only rabbits shot on the run at 75 yards or so are safe.

Tularemia Peritonitis: Fulmer reports a case which developed abdominal complications. Until that time, three months after the initial infection, the disease had run its normal course. B. tularense was isolated from the ascitic fluid in this case for the first time in the history of tularemia.

Tularemia has been diagnosed by clinicians as anthrax, glandular farcy, typhoid, septic infection, cholangeitis, actinomycosis, bone felon and "flu." Serologists have called it undulant fever, and because of the appearance of the lesions in the lymph glands pathologists have taken it for tuberculosis.

Laboratory Reports of Agglutination Tests on Three Cases Which Occurred in Oklahoma: Dr. Wilhite of Payne county, Oklahoma, sent in three specimens of serum from three patients who had had an infection resembling tularemia a year or more before the time the specimen of blood was taken. The serum of No. 1 agglutinated B. tularense in a dilution of 1:320. The

sera of No. 2 and No. 3 agglutinated B. tularense in a dilution of 1:160. The three cases occurred in Payne county and were traced to the dressing of wild rabbits.

Summary and Conclusions:

1. Tularemia is a specific non-contagious infection caused by B. tularense.

2. Tularemia has a great variety of insect and animal hosts and is transmitted through heredity to the eggs of the tick by the female.

3. Tularemia has a seasonal occurrence in various localities. Only the nine northeastern states are free from it.

4. It follows the dressing of infected wild rabbits and is common among butchers and poultrymen.

5. So far, excepting for the Ohara disease of Japan, it has proven to be an entirely American disease.

6. The mortality from tularemia is only 4 per cent.

7. Man is highly susceptible to tularemia; horses, cattle, dogs and hogs are not at all susceptible.

8. There are four clinical types of the disease known.

9. B. tularense will grow on a variety of media, but grows best on coagulated egg yolk.

10. The best methods for making a diagnosis of tularemia are isolation of B. tularense or by the agglutination of B. tularense with the patient's serum.

11. There may be cross agglutination with abortus or melitensis.

12. The agglutinins persist in the blood long after recovery.

13. Treatment is symptomatic. There is no tularemia vaccine, but the disease can be prevented.

14. Laboratory workers handling live tularemia cultures are sure to become infected. B. tularense penetrates the unbroken skin.

15. There has been a case of tularemia peritonitis reported by Fulmer. Tularemia has been mistaken for many other diseases.

16. Three cases have been diagnosed in Oklahoma more than a year after they occurred by the agglutination test.

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MERCUROCHROME TREATMENT OF PURULENT MENINGITIS*

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Purulent meningitis is an inflammation of the meninges with purulent spinal fluid. It may be caused by practically any of the pyogenic organisms. We are reporting in this article two cases of meningitis following the flu and one with no known etiology, as no bacteria was demonstrated, neither by smear nor by culture. The patient gave no history of having had the flu nor any other recent illness.

*Read before the Section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association, Tulsa, May 17, 18, 19, 1928.

The treatment that we wish to record is the use of mercurochrome in purulent meningitis. Case number one had no other treatment. The other two cases, or cases number two and number three, also had spinal puncture. Case number one is interesting particularly, in that the usual treatment of spinal puncture was not used. Especially interesting as the mortality in purulent meningitis under any treatment heretofore used is very, very high. Josephine B. Neal, in Volume 10, Tice's Practice of Medicine reports only four cases recovered out of 1259. One of these was influenzal meningitis, one a staphylococcic, another a meningococcic and staphylococcic and last a streptococcic meningitis.

Case No. 1. A case of Dr. D. P. Richardson, Union City. A white male 11 years of age, in January, 1927, fell about six or eight feet from a hay mow striking his head on the dirt floor. He was up immediately and attended school the next day. No symptoms developed. Two weeks later he came down with an attack of illness diagnosed clinically influenza. The symptoms were typical. He quickly recovered and returned to school. Two weeks following the influenzal attack he became very ill, with all the classical symptims of purulent meningitis, high fever, vomiting, delirium, opisthotonos, positive Kernig's sign, exaggerated reflexes and stiffness of the neck. There was no spinal puncture, therefore no laboratory work on this case. A clinical diagnosis of purulent meningitis of an influenzal type was made. The patient gradually cleared up after intravenous administration of a 1 per cent solution of mercurochrome. Three doses were given in all, the initial dose of five cubic centimeters and the second dose of ten cubic centimeters two days later. Following the second injection the boy had a very marked reaction. As this reaction cleared up the symptoms of meningitis also cleared. During his attack of meningitis he developed an iritis of the left eye which persisted for some time after he was up and around. He had no other complications and is now in perfect health.

Case No. 2. This is a case of Dr. Paul E. Haskett of Oklahoma City. A seven-year-old girl had influenza in March, 1927, quite severe, keeping her in bed about two weeks. She recovered fully from this when on April 26, 1927, twelve days after her recovery from the flu, she was stricken with the measles, having high temperature for two days and then the ordinary course of measles, except that it kept her down about three weeks. She became very nervous the last week of her attack of measles, also drowsy and quite irritable although up and about the house at this time. It was noticed that her face was very flushed, her temperature was taken, which was 106. On the second day of this attack she was stuporous, temperature ranged from 102 to 105. A few hours later she became delirious and the same night had convulsions. At this time Dr. Haskett called a consultant who agreed with him as to the diagnosis of meningitis. At the beginning of the third day she developed opisthotonos. Convulsions, restlessness and the pain in the head continued. The first spinal puncture was now done, the fluid was very cloudy and under marked pressure. The removal of 20 to 25 cubic centimeters of spinal fluid relieved the convulsions and headache. The temperature ranged about 101 to 103 at this time. Opisthotonos and stiffness of the neck continued. The patient seemed improved on the fourth day, took nourishment, appeared brighter and slept fairly well. The headache grew very severe on the sixth day and spinal puncture was again done and was repeated every forty-eight hours, making eight spinal punctures in all. The severity of the headache was relieved by these punctures. From the sixth day to the fourteenth day she continued to have the normal course of any case of meningitis, one day appearing better, the next worse. The writer was called on the fourteenth day in consultation, agreed with the diagnosis and recommended the use of mercurochrome. At this time the patient was still in opisthotonos and very low.

Five cubic centimeters of a 1 per cent solution of mercurochrome were administered intravenously with little or no reaction and no apparent improvement. The second day later five cubic centimeters of a 1 per cent solution of mercurochrome were given. The reaction was very marked within forty minutes after giving this dose of mercurochrome but as the reaction subsided the patient showed improvement, although the stiffness of the neck and opisthotonos did not entirely disappear until the end of the twenty-first day. Four doses of mercurochrome were given in all. The patient had no reaction from the third and fourth doses. Each dose was given after a forty-eight hour interval. The pa-

tient entirely recovered with no complications, mental or otherwise.

Case No. 3. A case of Dr. Paul E. Haskett, Oklahoma City. William Lawrence, a boy 10 years of age, took sick on July 1, 1927, with chills, fever, stiff neck and opisthotonos, soon followed by paralysis of the muscles of one side of the face and neck, with regurgitation of all food and water. He had to be fed through a nasal tube.

Treatment: July 4, twenty to twenty-five cubic centimeters of cloudy spinal fluid under pressure was withdrawn. On July 5, five cubic centimeters of a 1 per cent solution of mercurochrome were given intravenously. This caused considerable reaction, patient having a chill, followed by temperature of 104. On July 6, five cubic centimeters of a 1 per cent solution of mercurochrome were given intravenously with no reaction.

On July 7, the second spinal puncture was done, withdrawing about twenty to twenty-five cubic centimeters. The fluid was much clearer and under less pressure at this time. On the 8th the third and last injection of five cubic centimeters of a 1 per cent solution of mercurochrome were given with no reaction. On the 9th the third and last spinal puncture was done, bringing clear fluid under very little pressure. The improvement of the patient at this time was very marked. He was again able to take food by mouth. There were very few symptoms remaining on the 10th and none on the 11th. The patient was discharged, apparently well.

So far as we know personally and as far as we are able to find from the literature mercurochrome has never before been used in the treatment of purulent meningitis. Three cases are not enough to establish the claim that it is a specific or even that it is better than any other treatment. Considering the high mortality, however, we do believe that its successful use in three consecutive cases, with no mortality, warrants us in recommending it to the profession for further use, so that after a hundred or more cases have been treated with mercurochrome we can draw our conclusions as to its real or relative merits.

FOCAL INFECTION FROM PARANASAL SINUSES*

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ENID

A suspicion or diagnosis of infection of the above named cavities previous to the past ten years was mostly only considered by one doing eye, ear, nose and throat work. He being consulted by the patient who presented the symptoms of pain, pus and swelling, but now, with more cooperation between the internest, urologist and pediatrition we have found that there are a great number of organic diseases resulting from sinus infection, in which there are no subjective symptoms of sinus involvement other than constant nasal or posterior nasal discharge, especially is this true of maxillary sinusitis.

It is fairly easy to make a diagnosis of an acute frontal or maxillary sinusitis, due to the usual accompanying symptoms of pain, tenderness on pressure and slight temperature, but of the chronic cases which are more prone to give us a foci of infection, it is not so easy, as the local subjective symptoms are slight or absent, and we have to make a diagnosis from inspection of the nose and naso pharynx after shrinking the tissues and make use of negative pressure to withdraw pus, or find polypi and hypertrophy of tissue. Also use transillumination and the X-ray, but I dare say that we all have had difficulty in making a diagnosis of chronic sphenoiditis even with the X-ray, however, I believe in the future with the X-ray technique as used and given by Granger, which gives a constant stable line that is changed only when disease is present, we will be able to diagnose disease of this sinus with certainty.

The possible symptoms and more or less local effect may be enumerated as follows: nasal discharge, nasal obstruction, epistixis, sneezing, constant colds, pharyngitis, catarrhal, deafness, dizziness, cervical adenitis, especially in the posterior triangle, chronic cough with lung pathology, pain in the face and teeth, recurring fever, sallow complexion, irritability, poor school progress, malnutrition, gastro intestinal disorders in children, hypersensitiveness and nervousness.

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The foregoing enumerations represent a complication from the literature to which reference has been made. Of course, only, a few of these conditions will be found in any one patient, although they are to be found in almost any combination.

The subject of this paper does not permit of extensive consideration of the etiology or treatment, except to state that they are mostly caused by colds in the head or infection of the nose, throat, or pharynx extending into same, with the exception of maxillary sinusitis, 50 per cent of which is of dental origin according to E. C. Hume, D.D.S., Louisville, Kentucky. But my observations have been that not more than 25 to 33 1-3 per cent are due to dental origin. The 50 to 75 per cent of antrum cases not of dental origin, are results of the above named infections, which seldom entirely clear up and remain a potential factor in focal infection.

Most of the chronic cases assume importance from a focal rather than from a local standpoint, the following diseases having been shown to be caused or aggravated by a chronically infected maxillary sinus, pharyngitis, laryngitis, asthma, bronchitis, bronchiectasis and pneumonia. Among other diseases proved to sometimes result from sinusitis, all of which may of course be due to other foci, as well may be cited the following, cardiopathias, nephritis, pyelitis, rheumatism, neuritis, retrobulbar-neuritis, retinitis, uveitis and iritis.

In a review of 500 cases of maxillary sinusitis by Drs. Lockard and Argall of Denver, nearly one-third of the patients with uncomplicated maxillary sinusitis were unaware of any nasal disease other than recurrent and presistent colds in marked contrast to those with frontal, ethmoid or spheniod involvement and in the maxillary cases constitutional symptoms were more generally the rule. In children we have, in addition to the above, chorea, anemia, malnutrition, digestive disturbances, cyclic vomiting, nervous instability and deforming arthritis.

Louis H. Clerf of the Jackson Clinic, Philadelphia, states that in most chronic cases of bronchitis and all bronchiectasis they have found a chronic antrum infection, which is most impossible to clear up until the sinus is freed of infection. Mullin and Rider claim to have definitely established a lymphatic route which connects the paranasal sinuses with the bronchi and lungs via the lymph nodes and vessels, lymphatic ducts, veins and right side of the heart. I wish to cite the following cases which I have recently had under observation:

E. McC., age 8, April 16, 1928.

Chief complaint: Child has had a hacking cough for about three years, constant expectoration of yellowish phlegm. Nasal discharge, white in color, foul odor. This discharge from nose was worse at times. Child is somewhat deaf. Has some stomach disorders. Complains of eyes watering at times. Past History: Fairly good health. No accidents; tonsillectomy and adenoidectomy three years ago for relief of above trouble. Childhood diseases with good recoveries. Slight influenza four years ago. Family History: neg., physical exam. temp. 99.2, urine neg., head and neck. Right maxillary sinus cloudy on transillumination and with X-ray. Posterior nasal discharge. Piece of tonsil in upper right fossae. Ear drums dull looking, cone of light absent. Chest: Bronchitis, bordering on bronchiectasis of lower part of left lung. Treatment consisted in window resection made underneath lower right turbinate into right antrum under general anesthesia. Forty-eight hours later sinus was irrigated with quite a lot of curded pussy material obtained. Washed every 48 hours. May 9, 1928. Patient still under treatment, much improved, temperature normal, posterior nasal discharge and cough about cleared up.

Joseph W. Miller calls attention to the frequency with which patients, suffering with some cardiopathy, have chronic maxillary sinusitis without any subjective symptoms referable to the sinus involvement. The following case, I believe, will substantiate his observations:

Name D. D., age 15, January 17, 1928.

Chief complaint: Pain in knees and elbows. Discomfort in left chest which was worse on exertion, tires easily. Complains of shoes being very tight and uncomfortable in late afternoon and evening. Posterior nasal discharge which caused a constant clearing of the throat. Past history: Health has only been fair. Has had many colds and frequent sore throat up until about four years ago when tonsillectomy and adenoidectomy was performed. Had scarlet fever about five years ago with good recovery, no complications. Patient developed a bad cold about Dec. 25, 1927.

accompanied with severe pain in right side of face and head which lasted about three days and was diagnosed as sinus trouble by her family physician.

Physical examination: Head and neck. Right antrum cloudy both on trans-illumination and X-ray. Pus discharge in nasao pharynx. Temp. 99.4, pulse 90, resp. 24. No head discomfort except posterior nasal discharge. Heart: Myo-carditis with moderate hypertrophy of heart and mild mirtal regurgitant murmur. Chest and urine negative.

Treatment: Patient put to bed in hospital. Digitalis prescribed. Under local anesthesia window resection under right lower turbinate, on January 18, 1928 Right antrum irrigated with quite a lot of curdled looking pussy material obtained. Antrum irrigated every other day. Patient made a gradual improvement, leaving hospital on February 3, 1928, with normal temperature, heart murmur barely audible, edema of feet and ankles almost cleared up, good general improvement. Patient kept quiet at home, following dismissal from hospital. Was seen at intervals from ten days to two weeks with absence of arthritic pains and edema of feet and ankles and continued general physical improvement.

In 1923 Marriott and Clausen pointed out the relationship between sinus infection and parenchymatous nephritis (nephrosis) all of the nephrosis cases in children that were studied had sinusitis and the causative organism was found to be staphylococcus.

The inter-relationship was shown by the prompt disappearance of albumin and odema with free drainage of the sinuses.

In 1925 Aldrich reported three patients with nephrosis, in all of whom sinusitis was found. Jean, Department of Pediatrics, University of Iowa, 1926, reports three cases of nephrosis, all with maxillary sinusitis, one with streptococcic infection died of septicemia, the other two with staphylococcus infection promptly cleared up with sinus drainage.

The inter-relationship between hemorrhagic nephritis and infection is undisputed. The infectious organism probably is a streptococcus in all instances and its source is usually the tonsils. However, several writers have reported cases in which the sinuses seemed responsible and the following cases will serve to illustrate the same:

H. B., age 10 years, Dec. 19, 1924. Acute hemorrhagic nephritis, urine bloody, many casts, patient improved with rest in bed, diet and internal medication. Feb. 10, 1925, with negative urine, chronic infected tonsils were removed, immediately following operation signs of nephritis reappeared which cleared up in two weeks. April 8, 1925, patient returned with bloody urine. April 18, 1925, sinusitis was diagnosed. Both maxillary sinuses drained followed by a mild exacerbation of kidney symptoms. Within two weeks all evidence of symptoms absent, which have remained so until last seen in February, 1926.

In the presence of rheumatic fever, chorea, heart disease and kidney infections, one is in the habit of thinking first of the lymphoid tissue of the throat as a site of an infectious foci. Nevertheless everyone is familiar with the failure of tonsillectomy to secure relief and prevent recurrence in many instances. Two such examples are cited by Jean.

D. S., age 9 years, had chorea of four months duration. She had had a complete tonsillectomy and adenoidectomy at the age of 7. In addition to chorea, she was found to have a moderate secondary anemia and to be ten pounds under weight. As foci of infection, every paranasal sinus was found filled with pus, so thick in the maxillary sinuses that it was aspirated with difficulty.

G. Y., age 7 years, had chorea, the tonsils had been removed, but some small stumps remained. In addition to the chorea there was a moderate mitral insufficiency, well compensated and apparently inactive. The girl was markedly under weight and had secondary anemia. Chronic ethmoiditis was diagnosed. In about a month she had recovered completely from chorea, and seemed to be in excellent condition. The patient seemed to be quite well for two months, when she began to have fever and cough. After ten days of illness, she was seen again and found to have acute endocarditis. No possible focus was found except the sinus disease which had persisted. Convalescence was rapid following active treatment of this infection. Six months later this patient was in good health and had had no recurrence of any rheumatic manifestation.

Dean calls attention to the frequency of sinus infections alone or co-existing with middle ear and mastoid infection. causing nephrosis, nephritis, cardiac lesions, rheumatic fever, chorea, cyclic vomiting, anemia, bronchiectasis, asthma and cholera infantum symptom, complex, saying that if the condition of the patient is not too urgent, it should be dealt with conservatively by use of ephedrin and argyrol, but in bad cases of dehydration, rheumatism and heart lesions they should be punctured and washed and some that do not yield to this, must be dealt with in a radical way. He cites several cases in which various systemic diseases have been helped and cured by sinus treatment.

In my experience and from information I have gained from the literature, infections arising from the frontal, ethmoid and sphenoid sinuses, involve mainly the brain and the eye and its adenexa.

I will not waste time by citing the various infections or diseases of same, that may result from a focal infection of these sinuses of which you are all aware, but do wish to call your attention to the valuable work that is being done by M. E. Brown of New Orleans, on ocular infections from the sphenoid, the diagnosis of certain types he claims was impossible until Granger perfected his technique with the X-ray, to the extent that he can diagnose with certainty whether the sphenoid sinus is negative, polypoid, empyemic or hyperplastic.

He especially calls attention to the hyperplastic type the symptoms of which do not differ from the classical sphenoid syndrome, except that rhinological examination is negative and the diagnosis must be made by X-ray.

The eye findings are, central vision normal, color perception normal; peripheral fields concentrically contracted, both for form and color, as low as the 10th meridian in some cases, with no demonstrable pathology in the fundi. Both eyes are usually diseased, with the greater contracture being on the side in which the sphenoiditis is present. In a series of 27 cases studied for a symposium on sphenoiditis, held recently by the Opthalmological, Rhinological and Otolaryngological Society of New Orleans, the radiologist confirmed each diagnosis without a history. The cases were all handled surgically and the percentages of improvements and cures were 74.3 per cent.

CONCLUSION:

There are a great number of patients who have diseased sinuses, which cause various systemic diseases without subjective symptoms referable to the sinus.

That we are not giving our patient the best service, when we examine the upper respiratory tract and find one source of infection and do not eliminate other possible foci.

Nothing original is claimed for any of the observations presented, but if this review serves to attract more attention to this phase of focal infection our time will have been well spent.

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INJURIES OF THE EYE*

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With years in the practice of medicine come interesting as well as unusual occurrences. This is true as much in the oculist's practice as in any other line. Each year the doctor will see many strange, sometimes unusual accidents. Some may be comedy, others tragedy, depending entirely upon the individual involved as well as the nature and extent of the accident itself. From the oculist's standpoint any accident involving the eye is always looked

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upon as being a dangerous condition with which to deal and treats it as such.

Injuries to the eye vary in severity as well as the ultimate reparation. Many things enter into the favorable or unfavorable results of the injury. The home surroundings, the vocation, the location of the injury, both as regards place where it happened and the conditions surrounding its occurrence as well as the location of the injury to the eye itself will often times play a very important part in the recovery of the patient. The physical and mental condition of the injured person will sometimes play quite an interesting part as we know. The aged or the person who has just undergone or is undergoing a protracted illness is more liable to have an unfavorable and disappointing result than one robust and youthful. The mentally deficient or ignorant are very hard to treat, the "wise guy," the one with a "little learning," one with a doting grandmother as well as that individual who has a Doctor or druggist friend who disregards the treatment of the oculist and makes recommendations of his own and as a consequence destroys the morale and tends to unfavorable result. But why burden you with all this which you, too, have learned from experience.

Those of you who are fortunate or unfortunate enough to live and practice in an industrial center know the majority of eye accidents are of industrial origin, ranging from simple to the most severe, and since the creation of *The Industrial Commission* we are treating more and more of this kind of accidents because of the compensation law. Not that the law has had any tendency to cause more accidents, but the employers are paying more and more attention to accidents no matter how trivial they at first may seem. But not all severe eye injuries are necessarily of industrial origin, as I am sure some of the most destructive injuries I have had were far removed from industrial pursuits. No one is immune.

I am not going to detail any symptoms or any line of treatment but shall instead confine myself to the detail of a few of the many eye injuries encountered, taking up some of the occupations and accidents occuring in that particular line of work.

When statistics show us there are more than 125,000 blind persons in the United States, the major portion of whom were blinded by accidents, most of them preventable, it is indeed tragedy and an economic problem which calls for serious consideration, not only from the oculist, but from thinking laymen as well, and when employers are brought to a realization of the necessity of protecting and providing safeguards for their employees who might receive an eye injury then a forward step has been made in reducing the number of eye injuries with which we have to deal. The same thing applies to employees as well and to all others liable to eye injuries.

Some of the people most liable to injuries of the eye are as follows: quarrymen, physicians, dentists, railroad men (those in the operating department or those handling trains) section-laborers, miners, mechanics, battery men, cowboys, carpenters, common laborers, stone masons, baseball players, telephone and telegraph employees (construction men), and many, many others.

Accidents to the eye may be classified under two headings, industrial and household accidents. I will not attempt to differentiate between the two, but will merely give you some of the usual as well as unusual accidents to the eye found in these two classes.

Before the advent of oil burners on our railroad systems the most frequent accidents met with was that of a cinder in the eye, instead of them being common now they are rather rare while it is not infrequent now that we have a fireman, engineer or brakeman who is injured by having sand from the flues blown into his eye. During the summer time a great many people are injured because of insects getting into the eye. Acids and alkalies cause quite a few eye injuries especially among those working with or dealing with automobiles and radio batteries, the same being true of chemists and students in chemistry.

A number of times I have been called upon to treat an individual who had put iodine into their eye, thinking they had gotten hold of the argyrol bottle. While I have seen no serious results following this procedure yet it is quite painful and calls for immediate attention.

One of the most distressing as well as painful and destructive accident to the eye is a finger nail scratch or cut. I have seen a great many of these where a mother or a nursemaid had been struck in the eye by a baby's finger nail.

Fireworks, firecrackers and toy cannons, as well as the backfire or explosion of a gun, exacts its toll each year among the children as well as adults.

I believe the most horrible eye accidents I have seen have been caused to small children by dynamite caps. The usual story runs about like this. Some blasting work had been going on and the caps had been placed at some point where they thought they were safely hidden, but the child found the cap, placed it on a rock and hit it with another rock or hammer with the result that one or both eyes were permanently destroyed and usually a hand or even both hands sacrificed. I think it would be in order for this association to go on record demanding some law whereby those handling or dealing in dynamite caps should account for each cap the same as the dealer in opium and its derivatives are compelled to account for each grain that comes into their possession.

Since bobbed hair has become the prevailing style, burns of the eye from the old-fashioned curling irons are now very rare.

Each year the oculist sees entirely too many youngsters injured by B.B. guns, "nigger-shooters," and beanflips, as well as hunters during the bird season who have gotten a stray shot from his hunting partner's gun.

Broken spectacle lens cause quite a few injuries, as well as glass in the eye from broken bottles or windshields.

Wood alcohol every year exacts its toll not only from drinking but from patent face lotions as well as scalp application.

The use of face powder among the women having increased several thousand per cent in the last few years, has played a part in the production of eye injuries.

A very frequent cause, especially among workers with steel or iron in any capacity, is the production of an injury by getting steel in the eye, this is always a grave condition and causes serious results.

Premature blasts happening to miners, quarrymen or well diggers exacts its toll yearly.

Workers with emery wheels should at all times wear protective goggles. Short circuits among electrical workers and oxy-acetlyn welding demands protective goggles. Wood choppers, saw-mill workers, cabinet workers, etc., should also have protective goggles.

Each year we have a number of people injured because of being struck in the eye by a nail or staple, blades of grass, blades of corn, beards of oats, wheat, cotton bolls, etc., and they are the source of a great many eye injuries.

Knife wounds produce, as a usual thing, serious injuries to the eye and every housewife should, at all times, keep out of reach sharp knives, scissors, ice picks and all other sharp pointed instruments so that the children cannot find them to play with.

Quite common are injuries produced by a kick from a horse or a mule or the switching of a cow's tail while milking as well as blows from a fist or baseball or by being struck by the branch of a tree while going through the woods.

These are just a few of the many accidents with which we meet and while I have not tried to classify these injuries under their rightful heading, the point I am trying to leave with you is that it does not make any difference who the individual or what his business may be he is liable to an eye injury and that every safeguard and protection should at all times be thrown around us all to the end that we may conserve the most precious organs we possess.

CHRONIC APPENDICITIS —CASE REPORT

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This case is of interest only because of developments subsequent to operation, which will appear in the report.

Miss X, age 25, came to the clinic for examination August 16, 1924, complaining of a pain in the right lower abdominal quadrant which she has had on and off for the last two or three years. This pain has never been very severe. The last attack from which she is now recovering, has been the most severe, but even this has not been severe enough to put her to bed.

In the beginning of an attack the pain is diffuse but always tends to localize in the R. L. Q., is not associated with nausea or fever (patient's statements) but there is tenderness to pressure which remains only a short time following attacks. There is

no radiation renal or bladderward nor urinary frequency. The radiation is at times to the inner aspect of the right thigh. Constipation moderate, no menstrual association.

Family history is negative.

Personal history: Normal babyhood and girlhood. Usual diseases of childhood with good recoveries. Frequent attacks of tonsillitis with rheumatic manifestations. Tonsils removed three years ago by Dr. Dixon, since when she has been free of rheumatism. Best weight 118, present weight 110. Menses began at 12, regular, painful only during first few years, moderate in amount, duration four days. At the age of 18 had hyperplasia of the thyroid which lasted only a year.

Physical examination: Moderately well nourished blonde young woman, temperature 99, pulse 80, regular or normal tension. Head, neck and extremities negative except for what appears to be a slight enlargement of the right lobe of the thyroid. Mouth, teeth, gums and throat negative, tonsillar fossae empty. Chest—heart and lungs negative. Abdomen is moderately full, fairly soft, no masses. There is a moderate degree of tenderness in the R. L. Q., especially two inches internal to iliac crest on McBurney's line, muscular rigidity is appreciable over this area. Pelvic examination not made.

Laboratory work: W.B.C. 11300, poly 78, S.L. 14, L.L. 8. Urinalysis, specific gravity 1018, reaction alkaline, albumen negative, sugar negative, microscopical—*occasional pus cell.*

Diagnosis: Appendicitis, chr. cat. rec.

Operation: Appendectomy, med. lower incision. Oophorectomy left.

Remarks: The left ovary is about twice normal size and is short though with cystic degeneration. The right being perfectly normal, the left was removed. The appendix contained a thickened area on its surface covered by enlarged tortuous vessels. Its walls were thickened and it was distinctly diseased. General abdominal exploration negative. Patient discharged to her home in two weeks after an apparently normal convalescence.

Almost a year later, in response to a questionnaire, she returned for examination giving the following history: Has not regained her strength since the operation. Tried to teach but was compelled to quit in two months on account of weakness. Has not regained her weight. Does not think that she has had fever. Not constipated; a little annoyance from nocturia, no cough. Principal complaint at this time is that for the past week she has had urinary tenesmus with some blood at the close of the act.

Examination at this time notes that she is rather thinner than at time of previous examination. Her temperature is 99, pulse 85. Chest shows slight dullness at left apex and a few crackling rales are heard here and in the left base crepitation is in evidence. X-ray of chest shows hilus infiltration with marked beading. Calcified areas in radiating lines extended upward toward left apex and to level of clavicle.

Cystoscopy shows a very reddened trigone especially about the right ureteral opening. Left trigonal area negative.

Two weeks later an anal fistula appeared which presented all the characteristics of a tuberculous fistula.

At this time with our studies of the renal tract incompleted, the patient passed out of our hands.

General remarks: When this patient was first in our care for the chronic appendicitis which operation proved she had, a more exhaustive study of the case should have been made either before or after the operation. There were two facts standing out, the one clinical, the other laboratory, which indicated that this should have been done. The first, the clinical fact of a progressive loss of strength attended by a weight loss with temperature of 99 of which the patient was completely unaware. Mistakenly we attributed the temperature elevation to the appendicitis but which a more careful analysis would have shown to be improbable since the attack had subsided and had never been other than catarrhal. The laboratory showed *occasional pus cells in the urine.* The urinalysis 11 months later showed 10 to 12 pus cells with many red blood cells marking the progress of this lesion in that length of time. This clearly indicated that two lines of research should have at that time been followed up: the *lungs* and *kidneys.*

At this time, Dr. Rucks made a clear cut diagnosis of pulmonary tuberculosis and while we were not permitted to pursue our studies to a proof it seems clinically fairly clear that she has also a right renal tuberculosis since she is complaining of consid-

erable right renal pain and soreness in addition to the cystoscopic evidence.

Careful study in the beginning would have been rewarded with a complete diagnosis and a gain of a years time to the patient.

The case demonstrates what all of us are prone to overlook—multiple lesions. Because we make a clear cut diagnosis on one lesion, we are very apt to push our studies of a chronic case no further.

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STENOSIS-PYLORIC-HYPERTROPHIC CONGENITAL—CASE REPORT

A. L. BLESH, M.D.
OKLAHOMA CITY

Patient, baby boy, age 2 months. Parentage healthy, delivery normal, apparently healthy boy baby at birth. Health continued apparently normal during first three weeks of life; no diseases.

Present illness began with attacks of vomiting following ingestion of food, 30 minutes to two hours. This continued for five weeks, when the patient was brought to the clinic by Dr. Coley with the diagnosis of congenital pyloric stenosis already made. Diagnosis had been confirmed by X-rays which showed at the time taken practically complete stenosis with retention.

The vomiting had progressively increased from its inception to the present time. At this time it seems complete, the act is accomplished without effort, seems almost expulsive and sometimes contains more in quantity than one feeding. Wasting has been rapid in the past two weeks, dehydration marked, skin dry, a general mummified appearance. Patient restless and hungry. Food never refused but taken always eagerly.

Little patient seen by Drs. Robinson, Harris and the writer and a diagnosis confirmed and in agreement with Dr. Coley, an operation advised after 24 hours preparation. It was perfectly clear to all of us that operation in the dehydrated, starved condition of the little patient would be fatal.

Pre-operative preparation consisted in intra-peritoneal injection of four ounces of normal salt solution every four hours and a blood transfusion of 50 c.c. of mothers blood four hours before operation.

This treatment changed a fretful, crying, dehydrated little patient into a much improved and sleeping babe.

Operation 10-21-27 Ramsteadt pylorotomy. Anesthesia, local, novocain 1 per cent.

Operative remarks: Pylorus presented a hard cylindrical formation covered by normal, somewhat adherent peritoneum. This formation was about 1 1-4 inches in length, even in contour passing almost abruptly to normal structure at either end. It was incised longitudinally to the pylorus and transversely to the hypertrophied circular, muscular pyloric fibers. The division was made throughout the extent of the mass of hypertrophied fibers to the mucosa. No attempt was made to close over the pyloric operative area, but pylorus was dropped back and abdomen closed. Stomach was dilated but otherwise normal. Gas passed pylorus immediately upon incision. Patient slept quietly during the operative seance. The hypertrophied circular fibers appeared on section almost like cartilage and cut like it, spread immediately following the knife.

Clinical post operative course: The patient came from operation without any shock. Administration of water and food was begun at once. A very little vomiting occurred following administration of water, but once post-operative.

In a few days the baby was returned to the mother's breast and began to gain strength and weight rapidly.

Upon discharge from the hospital at the end of 5 days, the incision was healed, food was being taken at regular intervals and sleep was normal.

General Remarks: Congenital pyloric stenosis has been classified as: 1, spasmodic; 2, hypertrophic; 3, combined. It is rarely if ever seen after six months of age. Males are said to be affected in the ratio of 4-1, some even doubt its occurrence at all in females. Hyperacidity is a common concomitant to the extent that some believe it to be a hypertrophic muscle response to irritation. This view would place all cases in the beginning in the spasmodic class. But this view is negatived by the fact that the condition has been found in a 7-months fetus. Also the fact that it is not encountered after six months of age speaks against this view of causation.

The pylorus begins to form at the third month of fetal life and perhaps the most rational view to take of the etiology is that it is one of the numerous developmental variations so often encountered. The fact that it becomes obvious after birth is to be explained by the fact that stomach function begins then and excites recurring spasm in the over developed circular fibers. This in turn enciting further hypertrophy —a vicious circle which finally completely closes the pyloric canal.

Symptoms: The outstanding symptom is of course vomiting which at first only may be mistaken for cyclic, for the reason that it appears in attacks which are responsive to pyloro-spasm. But it rapidly becomes continuous upon food ingestion until at last everything ingested is expelled and emaciation and dehydration, which at first is gradual, later becomes very rapid.

So long as a case can be considered spasmodic and the loss of weight is not marked, medical treatment is fully justifiable, but on the contrary when the symptoms of vomiting, weight loss and dehydration are progressive, surgery is indicated and should not be delayed too long. Most cases become really surgical.

The operation first applied to the relief of this condition was gastro-jejunostomy. This cured when it didn't kill, but it is a much more major procedure than that of pylorotomy as devised by Ramsteadt, which if done under local before the patient is utterly starved, is eminently successful and safe.

This case is reported mainly to call attention to a condition which we fear is often being over-looked at the cost of infant life. To a trained surgeon the operation is simplicity itself.

PROPHYLACTIC POLLEN EXTRACTS

The specific antigenic principle in plant pollens is best preserved by glycerin, or by a medium containing glycerin in appreciable quantity. For this reason pollen extracts for both diagnostic and prophylactic use are put up by some manufacturers in glycerinated form—the diagnostic extracts as a paste in small collopsible tubes, and the prophylactic extracts in liquid form, the diluent being glycerin and boric acid in one case, and 50 per cent glycerin in the other.

The diagnostic extracts are put up singly and in groups, enough in each tube for fifty tests.

The prophylactic extracts are available in dilute form, ready for use; there is no necessity for the physician to make up his dilutions as required. By withdrawing 1-10 cc. from the vial containing 20 pollen units in each cubic centimeter, he has a dose of 2 units for beginning the prophylactic course. It is an easy matter then to increase the dose, passing in due time from the 20-unit concentration to the 200-unit and thence to the 2000-unit strength.

Some physicians advise a continuance of the treatment beyond the usual 15-dose schedule, claiming better and more lasting results; and it is also claimed that, in case of complete protection following, it may not be necessary to repeat the treatment the following season; or, if there is any question on this score, a skin test may show that further prophylactic treatment is not required. The immunity continues for varying periods, according to the antigenic response of the patient.

Parke, Davis & Co. have a new booklet on Pollen Extracts in Hay Fever.

BACTERIAL ALLERGY (HYPERERGY) TO NON-HEMOLYTIC STREPTOCOCCI

While it is true that scrum disease and rheumatic fever possesses in common the condition arthritis, this does not necessarily indicate that the two diseases have a similar pathogenesis. The points of dissimilarity between the arthritis of the two diseases are many, and are explained by Homer F. Swift, C. L. Derick and C. H. Hitchcock, New York (Journal A. M. A., March 24, 1928), on the basis of the differences between protein hypersentitiveness and bacterial allergy. There may be in patients with rheumatic fever two phases of hypersensitiveness to non-hemolytic streptococci; if so, the authors' observations indicate that during the active stages of the disease the allergy is predominantly of the second type. Whether or not these patients will pass into a condition later in which the skin allergic reactions can be prevented by specific neutralization of the toxic filtrate with an antitoxic serum in vitro is a question that can be answered only after continued observation.

OLECRANON BURSITIS

In view of the fact that the olecranon process is so superficially located, that the cortex of the bone is extremely thin and also that the cells are of a cancellous nature, W. W. Lasher and L. M. Mathewson, New York (Journal A. M. A., March 31, 1928). believe that these bony cells are frequently injured at the same time that the injury to the bursa itself occurs. The close proximity of the large subcutaneous bursa to the elbow joint itself is to be remembered, as it is separated from the articulation only by the posterior portion of the orbicular ligament, and in one of the authors' cases was seen to communicate directly with the joint. An operation which does not completely remove the secreting lining of the bursa in a short time forms a sinus which drains clear synovial fluid. Unless the greatest care is exercised in subsequent dressings, this sinus will soon become infected. The occurrence of an osteomyelitis as an almost invariable complication does not seem to require any further explanation when one considers the close proximity of injured bone cells to the bursal infection. When a bursa is distended with pus, the most natural site of extension would be at its bony attachment. Patients seen early and operated on immediately make a rapid and complete recovery.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths, and weddings will be gratefully received.

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EDITORIAL

THE MINNEAPOLIS MEETING

More than five thousand physicians attended the Minneapolis session. The visitors were most royally entertained by the citizens of Minneapolis, who are noted for their hospitality. Minneapolis aspires to become one of the nation's convention centers and its spirit of hospitality will go a long way towards making it such. While perhaps its hotel facilities should and will be rapidly improved any lack of these is more than compensated for by the many great beauties and natural attractions which the city affords. It is the gateway to the natural play ground of many millions of people who take delight in visiting the state's wonderful lakes region.

One of the splendid features of the meeting, enjoyed by more than 40 visiting Oklahomans, was a dinner at the University Hospital, University of Minnesota, given by Mr. Paul Fesler, Superintendent of the Hospital, and Mrs. Fesler. The fish for this occasion were secured through the skill of Dr. F. M. Adams, Vinita, and Mr. Fesler, on a trip to one of the lakes.

The scientific exhibits, which have always, without question, been the greatest attractions of these meetings, this year excelled those of any previous meeting. A great deal of work with countless details was expended in making these exhibits of great interest to physicians studiously inclined. The pathological and anatomical specimens were wonderfully well prepared and arranged. The radiographic and anatomical prepartion of some of the exhibits were masterpieces. Practically every detail affecting the physician and his work was covered or included in some manner in some one or more of the exhibits.

The election of officers provided two spirited contests. For president, Dr. Malcolm L. Harris, Chicago, received 80 votes, while Dr. William Corry Morgan, Washington, received 64. In the vote for meeting places all were eliminated at the start except Portland and Atlantic City. Portland received 96 votes and Atlantic City 44 votes. Dr. Wm. A. Jones, Minneapolis, was elected vice-president. The following officers were re-elected: Olin West, Chicago, secretary; Austin A. Haden, Chicago, treasurer; Fred C. Warnshuis, Grand Rapids, speaker; Allen H. Bunce, Atlanta, vice-speaker; Jerry H. Walsh, Chicago, and A. R. Mitchell, Lincoln, trustees.

NOTICE TO MEMBERS

Recently the Physicians' Mutual Life Association, Medical Arts Building, Oklahoma City, issued a folder carrying the names of several Oklahoma physicians and dentists as officers and directors.

Investigation at the Oklahoma City office indicated that no meeting of such officers and directors has ever been held. Dr.

J. S. Pine, Oklahoma City, requested the removal of his name as director, which request was complied with. Dr. Walter Hardy, Ardmore, and Dr. C. A. Thompson, Muskogee, were requested to act in an advisory capacity in the organization of a purely Physicians' Mutual Life Association, and believing that this would be of value to the medical profession agreed to assist in any way. The use of their names as directors was unauthorized and neither of them have any interest in the company. Dr. Geo. R. Osborn, Tulsa, is apparently in the same status. The Dr. "E. D. Baker," Guthrie, refers to Dr. E. O. Barker, Guthrie, who states that he did take a policy but is having it cancelled.

It is believed that in fairness to the Oklahoma profession they should be advised that at least in most instances the physicians listed as directors had no understanding that they were to act as such, have not acted in any such capacity and are mere figures, so far as the management of this insurance company is concerned.

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Editorial Notes—Personal and General

DR. HUGH SCOTT, Chicago, visited Tulsa and Muskogee in June.

HOBART HOSPITAL formally opened its new building with a reception Monday, June 25.

DR. PAT FITE, Muskogee, will spend a part of July and August at his summer home in Minnesota.

DR. F. W. HENDERSON, Tulsa, accompanied by his family, is visiting his old home and other Texas points.

DR. H. M. STRICKLEN, Tonkawa, is moving to Arkansas City, where he will continue the practice of his profession.

DR. J. L. ADAMS, for many years physician of Pryor, is president and general manager of the Hobart hospital, which opened June 25th.

MUSKOGEE opened its new city hospital late in June, the public being invited to inspect it June 29th and 30. Several thousand visited the institution during that time.

DR. C. P. MURPHY, who has been a member of the medical staff of the United States Veteran's Hospital No. 90, Muskogee, since July, 1923, has been transferred to Edward Hines, Jr., Hospital at Maywood, Ill.

DR. C. P. BONDURANT and MISS VERA CROPPER, Oklahoma City, were married June 23rd, leaving immediately for a ten days' trip after which they will be at home at 601 West Thirty-second street.

SOUTHEASTERN MEDICAL ASSOCIATION elected the following at their election of officers June 20th: Drs. T. H. McCarley McAlester, president; Roy Cochran, Caddo, vice-president, and J. D. Haynie, Durant, secretary-treasurer.

DR. FOWLER BORDER, Mangum, was recently adjudged victor and awarded damages of $25,000 and costs in a case which has been pending in Oklahoma courts for many years. Dr. Border brought suit alleging conspiracy to injure him and discredit his work as Mayor of Mangum. The case has been tried many times. Dr. Border has always defeated his enemies in this fight.

STEPHENS COUNTY MEDICAL SOCIETY held a very interesting meeting in the dining room of the new Duncan Motel. Drs. Caraker and Nieweg were hosts. Steps were taken to prosecute druggists who are prescribing for venereals, also any one practicing the healing art without proper license. Free clinics advertised in the lay press also received a severe chastisement. Drs. McMahan and Pate will be hosts for the next meeting. The following members were present: Drs. Patterson, Caraker, Richards, Chumley, Bartley, McMahan, Long, Ivy, Salmon, Weedn, G. O. Hall, Smith, Overton, Carmichael, Burnett, Williamson, Talley and Nieweg. Dr. W. R. Mote was a visitor.

SOUTHEASTERN OKLAHOMA MEDICAL ASSOCIATION, Dr. C. C. Gardner, Atoka, president, and Dr. John A. Haynie, Durant, secretary-treasurer, met at McAlester, June 20. Beginning at 9:30 A. M. at Albert Pike Hospital, the program was as follows: Clinics at Albert Pike Hospital; luncheon at Albert Pike Hospital; adjourned to Camp Craig at Lake McAlester; call to order by President; invocation, Rev. S. H. Williams, McAlester; welcome address, Dr. Charles L Pearce, president of Pittsburg County Medical Society, McAlester; response to address of welcome, Dr. Jas. L. Shuler, Secretary of Bryan County Medical Society, Durant. Papers read and demonstrations given were as follows: "Some Common Diseases of the Skin With Treatment," Dr. C. P. Bondurant, Oklahoma City; "Intravenous Treatment of Diseases" (with some illustrative cases), Dr. R. C. Huckaby, Valliant; "Fractures" (with lantern slides), Dr. Wade H. Sisler, Tulsa; "Perforated Gastric and Duodenal Ulcers," Dr. L. S. Willour, McAlester; A lantern slide demonstration of interesting gastro-intestinal conditions, Dr. Shade Neely, Muskogee; "Diagnosis and Treatment of Seasonal Hay Fever," Dr. Ray M. Balyeat, Oklahoma City; "Diagnosis of Pulmonary Tuberculosis," Dr. J. T. Wharton, Durant; subject unannounced, Dr. L. C. Kuyrkendall, McAlester. Annual election of officers, and dinner at Camp Craig.

DOCTOR M. CLAY WYATT

Dr. M. Clay Wyatt, 60 years old, at one time a leading physician in Bartlesville, died June 29th after an illness of several days. Dr. Wyatt moved to Bartlesville a number of years ago and engaged in the practice of medicine there and at Dewey.

Dr. Wyatt was born in Maryland.

He was formerly a member of the Washington County and Oklahoma State Medical Association. He was a member of the Modern Woodmen lodge,.

Dr. Wyatt is survived by a daughter, Mrs. Ethel Wyatt Segrave of St. Louis, Mo., and one brother, Mr. M. G. Wyatt of Dewey. Funeral services were held July 2nd at the Burt Funeral Home, with Dr. Harry L. Ice of the First Christian church officiating.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M. D.
717 North Robinson St., Oklahoma City

The Repairs of Injuries to the Posterior Crucial Ligament of the Knee Joint. William E. Gallie and A. B. LeMesurier. Ann. Surg., lxxxv, 592 April, 1927.

The rupture or stretching of the posterior crucial ligaments is a very disabling condition, and the patient must either wear a heavy apparatus or suffer from an unstable and often painful knee. The operation consists of a long median posterior incision and isolation of the semi-tendinosus and utilizing its distal portion. The posterior capsule of the knee joint is exposed. A quarter-inch hole is drilled through the head of the tibia coming out near insertion of the semi-tendinosus. An anterior mid-line incision is made to enter the knee joint by the split patella route. The semi-tendinous tendon is isolated and passed through the head of the tibia from before backward. The interior of the point is exposed, the new ligament is pushed through the posterior capsule in line of the posterior crucial. A hole is now drilled through the internal condyle and the new ligament fastened so that it is entirely subsynovial. Knee is kept in extension in plaster two months. A case is reported one year after operation with excellent function. This is another brilliant contribution by these two Toronto surgeons.

Treatment of Ankle Sprins. Chas. P. Hutchins. Boston Med. and Surg. J. cxcvii, 91, July 21, 1927.

In this article on ankle sprins, Hutchins first inventories the pathological possibilities, that is, the extent to which ligaments and tendons may be involved without fracture or dislocation of bone.

Sprin of the ankle is most often caused by unguarded movement, by which the foot is turned suddenly inward (rarely outward), with sufficient force to rupture the ligaments, and possibly some of the fibres of the muscles, and to strain the tendons and sheaths.

An anatomical consideration is presented by the author to demonstrate that eversion sprins are much less common, due to the arrangement of structures about the ankle joint. He states, too, that when the foot is at a right angle to the lower leg, or when dorsally flexed to a lesser angle than that, sprins at the ankle joint are rare,

Treatment consists of strapping, the following technique being that employed by Hutchins.

The patient is seated upon a table at such a level that his depending foot hangs six or eight inches lower than the knee of the operator, who sits facing him. With adhesive straps one and one-half inches wide cut to length, the patient's foot is placed upon the operator's knee so that the ankle is dorsally flexed to eighty or eighty-five degrees from the long axis of the tibia and rests the full weight of the extremity upon the head of the fifth metatarsal. The patient's leg must be wholly passive. This leaves the leg on straight alignment from hip to ankle joint, and throws the foot into slight eversion. The first strap runs spirally around the lower calf on the medial side, across the instep and cuboid, under the sole, falling into a natural sweep on the dorsum. This is the salient control of the hypermobility. The second strap is a counterpart in the opposite direction, acting to limit eversion, and balancing the first. The third support is a stirrup from the middle of the calf, and passes in the lateral plans of the ankle joint. The fourth and narrow strip retains the third support in contact with the leg at its isthmus above the malleoli. It is imperative that the patient's leg be maintained in the same posture throughout the dressing, and his muscle action inhibited.

When the joint is firmly held in support, the patient is encouraged to walk; for functional use, if it does not cause further injury, is the best stimulant to repair. When the angle between the foot and the lower leg exceeds ninety degrees, the plaster is changed. Diathermy is usd in conjunction with the strapping.

Cyst of the External Semilunar Cartilage of the Knee. J. A. Nutter and C. L. Blew. Canadian Med. Assn. J., xvll, 55, May, 1927.

A case is reported. A boy sixteen had been disabled for a few days by a kick on this knee one year before. Four weeks before examination he began to complain of tenderness at the outer side of the joint line, in front of the external lateral ligament. There was some pain on full flexion and extension. At operation the cartilage was removed. The tumor was embedded in it. It measured four by three centimeters, was polycystic in character, and contained a pinkish gelatinous material. Microscopically there were numerous small cysts. The walls were composed of fibrous tissue, and there was no mesothelium lining. When the patient reported ten months after operation, he had made a complete recovery.

The authors review the clinical feature of the twenty odd cases in the literature. Their case is a typical one. They state that meniscotomy is necessary to effect a cure.

UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D.
1010 Medical Arts Building, Oklahoma City.

CLIPPINGS FROM UROLOGIC AND CUTANEOUS REVIEW

Don't bury your mistakes; correct them.

In a fever of undiagnosed origin look for syphilis.

The life of the syphilitic should be very regular.

Not all cases of syphilis are cured, but many can be.

A lumbar puncture will clear up many a doubtful case.

Syphilis is a pandemic disease and no respecter of persons.

All doubtful genital lesions should be properly followed up.

Falling of the hair of the eye-brows is most suspicious of syphilis.
Headache is an important symptom of early meningeal syphilis.

Some cases of syphilis can only be diagnosed by the therapeutic test.

Never treat a genital lesion until a dark field examination has been made.

The cure of syphilis is at best presumptive and recurrences always possible.

If the skin itches following arsphenamine look out for dermatitis exfollativa.

Stokes has said "To treat early syphilis with mercury by mouth is criminal."

Not all early neuro-syphilis will give a positive Wassermann in the spinal fluid.

The absence of itching must not rule out syphilis in the diagnosis of a skin lesion.

Local treatment is rarely necessary in genital lesions positively diagnosed as leutic.

The importance of the hygienic treatment of syphilis is hardly to be over-estimated.

An ounce of phophylactic calomel ointment is worth a pound of blue ointment cure.

That syphilis should be more common in men than in women is almost self evident.

Many a paretic has gone to an untimely end because some physician cauterized a chancre.

The diagnosis of latent syphilis may be most difficult, but should be kept constantly in mind.

To give arsphenamine without examining the urine is like lighting a match over a gasoline tank.

Do not consider the Wassermann the SINE QUA NON of diagnosis. It is but one symptom of syphilis.

A sharp needle will solve many problems of intravenous therapy, and make friends of your patients.

Spirochetes are not always found the first time in true chancres. Use your dark-field again and again and then again.

A diagnosis of chancre of the mouth by dark-field is extremely difficult. The spirochaeta microdentium morphologically is almost identical to the spirochaeta pallidum.

Neoarsphenamine should not be dissolved in a beaker that has contained a solution of cocaine or adrenalin even though the breaker has been well rinsed and sterilized as the slightest trace of those drugs may cause a slight decomposition of the arsphenamine, with resulting reaction.

PREPARATION OF PROSTATICS FOR OPERATION

Franklin R. Wright, in Minnesota Medicine, for February, 1928, says that the uremic man is prepared for operation by the judicious use of the catheter.

The elements which bring success are time and caution. The bladder should be only partially emptied daily, enough urine withdrawn to relieve but not remove the back pressure in the pelvis of the kidney. The amount of urine withdrawn is gradually increased until the bladder can be completely emptied. This allows the compressed kidney tissue to expand slowly. The urinary tubules not only retain but increase their function.

Under this treatment the uremia slowly disappears. The amount of urine excreted is reduced and its specific gravity increases. How near the urine will return to normal amount and specific gravity depends on the amount of permanent damage the kidney tissue has sustained.

The length of time required to decompress the kidney depends on the physical condition of the patient and the judgment of the surgeon. After it has been proven that it is safe to empty the bladder daily, the patient should be catheterized twice a day. Later, depending on the judgment of surgeon, a permanent catheter should be inserted.

As far as the danger of uremia is concerned any patient whose bladder has been drained by a permanent catheter for ten days without increasing his uremic symptoms can be safely operated.

In our opinion it is wise to let the uremic patient make a long preoperative convalescence. It is better to use the catheter a month too long than to operate five minutes too early.

TUMORS OF THE BRAIN AND SYPHILIS

Molrsch (The Am. Jour. Med. Sc. 175: 12-18, January, 1928), in a study of tumors of the brain and syphilis reaches the following conclusions:

1. Tumor of the brain is sometimes incorrectly diagnosed as syphilis because of: (a) positive Wassermann reaction of the blood; (b) positive Wassermann reaction on the blood and spinal fluid; (c) positive Wassermann reaction on the blood and an unusual condition of the spinal fluid; (d) negative Wassermann reaction on the blood but positive reaction on the spinal fluid; (e) negative Wassermann reaction on the blood but an unusual condition of the spinal fluid.

2. The diagnosis of brain tumor is frequently made because of the choked disc in spite of serologic changes

3. The incidence of choked discs in cases of syphilis is frequent enough so that its presence in cases of suspected brain tumor should not be accepted as a positive differential point.

ACUTE PRECOCIOUS SYPHILITIC MYELITIS

G. Nardi, in Arch. Ital. di Dermat., Sif. e Ven., Bol II, Fasc. IV, 1927, describes a case of acute syphilitic myelitis in a man 49 years of age. After describing the history, the grave clinical symptoms, and the laboratory findings he considered that the case was of unusual gravity and precocity. An intense and complete treatment was instituted but the patient died on the ninth day. The author enters into a discussion of the differential diagnosis of acute precocious syphilitic myelitis and concludes that it is a definite, special form of disease of the cerebro-spinal axis.

AORTIC SIGNS OF CONGENITAL SYPHILIS

J. Martagao Gesterra in Arch. de med. des enfants, for November, 1927, says that in his nine cases, all in children, there was a marked clanging of the aortic second sound. Radioscopic examination demonstrated alterations in the aorta. In some of the patients a favorable modification of the acoustic phenomenon occurred during antisyphilitic treatment, confirmed in two cases by a new orthodiagram showing considerable diminution in the size of the aorta. These lesions seem to be relatively frequent in children with congenital syphilis. However, they are of a transitory character, and are easily modified by antisyphilitic treatment.

At the last meeting of the State Medical Association the powers that be voted to combine the Section of urology with medicine and surgery respectively. This meets with our hearty approval provided, of course, that the section chairmen give the specialties a fair place on the program.

It was my pleasure to review several papers before they were read before the section at the last meeting, the major portion of which were very excellent papers to be read before the general section, especially on medicine, but which were rather routine to the urologists and I imagine each section is having that same experience. It strikes us that it will be quite a job for the section chairman to keep a lot of bunk out of the program, but if this is done we feel that it is going to be of mutual benefit to all concerned.

With a sincere desire not to brag we do wish to state that in the section on urology there has been comparatively little or no long papers copied from some text book or journal with a great many statistics therein and I am not so sure that this condition exists in some of the other sections, having dropped into a section and hearing a discourse that would have equaled Osler at his best. It may be, of course, that urology, being a baby specialty, everything is new to us, or again, it might be that working in a limited field we do not have to have quite so much repetition. As stated, it is with a little fear and trembling that we enter this combination, but only because we dread sterotyped copy work. Otherwise we feel that we have something to give the section on medicine and surgery, that we can help them in their diagnosis in certain urological conditions and that in turn we can be considerably broadened and helped in numerous ways ourselves.

TUBERCULOSIS

Edited by L. J. Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Factors Fundamental to Healing in Tuberculosis. F. M. Pottinger, M.D., Amer. Rev. Tb., May, 1928.

Healing of Primary Tubercle. When bacilli gains access to the tissues for the first time, they are immediately opposed by the body cells. The fixed cells proliferate, forming the epitheloid cell and leucoytes gather in large numbers. Many of the bacilli are engulfed and destroyed, others extend to the neighboring lymph nodes.

A primary infection is essentially an acute disease. The healing of primary tubercle is usually accomplished through calcification. The probable reason why healing so often occurs is because the infection is produced by so few bacilli that the nonspecific defensive forces of the body are able to overcome the bacilli or hold them at bay until the specific immunizing mechanism of the host has been brought into successful play.

Healing of Reinfections. Reinfections prolong life; first, by increasing the immunity which already has been established by previous infection; second, by stimulating the allergic response of the body cells and creating a barrier against the ready spread of the invaders; and, third, by producing reaction favorable to healing in and about previously existing foci.

Nature of Immunity and Cure. Whether or not a given patient shall overcome his particular infection depends upon the competence of his immunity reactions at the time when called upon. No matter whether the infection is limited or extensive, or slightly or markedly active, the indispensable factor to success in the natural healing of all chronic tuberculosis is the antituberculin reaction caused by reinoculation. Every reinoculation successfully withstood, leaves the individual with an increased immunity and the more serious and extensive the reinoculation withstood, the greater the immunity and the greater the healing resulting from it.

Non-Tuberculous Intrathoracic Conditions. (Radiography as an aid in their diagnosis). L. R. Sante, Amer. Rev. Tb., May, 1928.

Lobar pneumonia starts as a consolidation in the hilum region and spreads rapidly to the periphery, involving one or more distinct lobes of the lung. In upper lobe consolidation the ray traverses consolidation of similar thickness throughout so that the resulting shadow on the X-ray film should be dense and homogenous in appearance. The divergent beam of X-rays is projected across the lower border of the consolidation, so that the resulting shadow should have an abrupt straight line border from hilum to periphery. In middle lobe consolidation the consolidate area is smaller and wedge-shaped.

Lung abscess starts as an area of definite consolidation in the lung, frequently in the hilum region and soon develops an area of rarefaction in its midst. The consolidation spreads slowly and rarely, if ever, takes on true lobar characteristics. During the acute stage there is a heavy wall of infiltration thrown about the abscess cavity which usually serves to distinguish it from tuberculosis. When it becomes chronic the problem may be more difficult. Massive atelectatic collapse is encountered most frequently as a postoperative complication after abdominal operation. Radiographically an entire lobe of lung is densely solidified and homogeneous in appearance and there is narrowing of the involved side of the chest, approximation of interspaces and elevation of the diaphragm. The picture is similar to chronic interstitial pneumonia. Rolling the patient on the involved side and causing him to cough results in almost immediate reinflation of the lung. Primary tumors of the lung may be suspected as tuberculous disease. Tumors sweep across intervening pleural septa and present an infiltrating hazy border.

Pleural effusion: Fluid free from the pleural cavity, regardless of its cause, takes on a hazy concave upper border extending from the hilum upward and outward to the axilla. Localized pleural effusions produce a shadow with base at the periphery of the lung and bulge inward toward the compressible lung with a round semicircular border.

Pulmonary tuberculosis manifests itself in such numerous ways that, even with every method at our command, the problem of diagnosis is at times very difficult. The free use of X-ray examination proves a valuable aid in the diagnosis of the multiform disease.

BOOK REVIEWS

"Gonococcal Urethritis in the Male,"—for practitioners, by P. S. Pelouze, M.D., associate in urology and assistant genito-urinary surgeon at the University of Pennsylvania. Octavo volume of 357 pages, illustrated. Cloth, $5.00. Philadelphia and London: W. B. Saunders Company, 1928.

The author states that this is a simple story told from his own personal experience and deductions therefrom. The work is practically illustrated from original drawings. Some very interesting case reports are presented at the close under the title of "Analysis of Case Histories."

"The Duodenum, Medical, Radiologic and Surgical studies," by Pierre Duval, Jean Charles Roux and Surgical Clinic, Faculty of Medicine, Paris. Translated by E. P. Quain, M.D. Illustrated. Cloth, 212 pages. Price, $5.00. C. V Mosby Company, St. Louis, 1928.

This book deals especially with those cases which present more or less symptomatology notwithstanding surgical operative interference upon the duodenum and its adjacent troublesome, neighbor, the gall bladder. It clearly shows why these symptoms persist after a perfectly proper duodonal operation or cholecytecomy. It is unique in that it is compiled by a physician, a surgeon, a radiologist, and it has required the assistance of the chemist; neither of the four greatly introducing their individual ideas, but rather all of them presenting a fused product as a joint study of data with mutual criticism. It goes without saying that this should be valuable to both surgeon and internist.

The Surgical Clinics of North America (issued serially, one number every other month). Volume 8, number 3. (Chicago Number, June, 1928), 219 pages with 49 illustrations. Per clinic year (February, 1928, to December, 1928). Paper, $12.00; cloth, $16.00. Philadelphia and London.

This issue contains many splendid contributions. Among those of special interest should be incision by Approach to Major Joints" by Phillip Kreuscher; "The Causes of Failure by Bladder Neck Operation" by Daniel Eisendrath; "Differential Diagnosis of Carcenomatosis" and "Tuberculosis Peritonitis by Means of the Cystoscope" by Oscar Nadeau; "Fatal Post Operative Alkolosis" by Edmund Andrews and Warner S. Bump; and "Gastro Enterostomy Disease" by Arthur Dean Bevan.

A Manual of the Practice of Medicine, by A. A. Stevens, M.D., professor of applied therapeutics in the University of Pennsylvania. Twelfth edition, revised, 12 mo. of 657 pages, illustrated. W. B. Saunders Company, Philadelphia and London, 1928. Cloth, $3.50 net.

"Clinical Medicine," by Oscar W. Bethea, M.D., Ph. G., professor of therapeutics, Tulane Graduate School of Medicine, profession of clinical therapeutics, Tulane School of Medicine, New Orleans, La. Octave volume of 700 pages. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $7.50 net.

The author of this work has selected about 100 of the most common diseases coming within the province of internal medicine, omitting entirely unproven theories and directed his efforts to a concise presentation of symptoms, diagnosis and treatment. About 40 pages are devoted to tuberculosis; 9 to coriza. Tularemia is fully considered as are acute rheumatic fever and heart conditions. While the details of treatment are very specific, many prescriptions being included as applicable to certain cases, dietary considerations are not neglected. This is a very valuable book for busy practitioners.

END-RESULTS OF RADIUM REMOVAL OF CARCINOMA OF BLADDER

To determine the value of radium removal of carcinoma of the bladder, B. S. Barringer, New York (Journal A. M. A., Feb. 4, 1928), tabulates the end-results in cases in which five years had elapsed since irradiation. There were twenty cases of papillary carcinoma reported, twelve of which were proved by pathologic examination. Fifteen (75 per cent) were cancer free. Of these 20 patients, one has been lost sight of (included under deaths). Two were well from two to three years, and were then lost track of; two were well from three to four years; one was well from four to five years; five were well from five to six years; two were well from six to seven years; two were well ten years, and one was well 11 years. One patient died after operation from diabetic coma; two did at the end of two and three years, respectively, from carcinoma, and one died at the end of ten years, possibly from carcinoma. In fifty-one cases of infiltrating carcinoma, the pathologist's report agreed with the diagnosis in twenty-three cases. In sixteen cases, the diagnosis was carcinoma, without signs of infiltration, and in twelve cases either a pathologic examination was not made or the pathologic diagnosis was papilloma. Eighteen cases (35 per cent) were carcinoma free. In one of these cases a small papilloma occurred at the end of five years; this is under control. The deaths of patients who were free of carcinoma occurred as follows: two at the end of four years, one of apoplexy and one of cardionephritis; one at the end of five years of pneumonia, and two at the end of six years, one of kidney disease and one of apoplexy. There was one operative death from uremia. Thirty-two deaths occurred from carcinoma as follows: one patient was lost track of, and is included in the first year deaths; sixteen died in the first year of carcinoma, and sixteen died at various periods, up to five years from the onset of carcinoma. To determine the mortality of the suprapubic implantation of radium, Barringer tabulated the results of operations done up to 1927. In all, ninety-four suprapubic operations have been done in ninety cases. Two of these patients were operated on twice, and one patient, three times. The patient operated on three times is cancer free, and it is now seven years since the first operation; the other two are dead. These operations are divided as follows: papilloma, five operations; papillary carcinoma, ten operations; infiltrating carcinoma, seventy-nine operations. Three postoperative deaths occurred. One patient with a papilloma, who had bled for weeks prior to operation, died three days afterward from hemorrhage. Another with papillary carcinoma died in diabetic coma, three months after operation. This patient had had 5 per cent sugar in the urine before operation. The third death resulted from uremia, two weeks after operation, in a patient with infiltrating carcinoma. In this patient, the blood urea nitrogen was 42 mg. before operation; this rose to 120 mg. two days before death. In the ninety-four suprapubic implantations of radium, there was a mortality of slightly over 3 per cent. When this is compared with the mortality of between 10 and 20 per cent resulting from the operative removal of carcinoma of the bladder, it is realized that even if radium removal were not more effective than operative removal, one would, by using the former, spare a goodly number of lives. As opposed to this, the flexibility of radium and its use in bladder tumors, the low mortality of its suprapubic application and the possibility of many small tumors being controlled intravesically so far overbalance the disadvantages that today radium is the method of election in controlling bladder tumors.

ENTEROCOCCUS PERITONITIS

Leon DeVel and Elmer L. DeGowin, Ann Arbor, Mich. (Journal A. M. A., Feb. 18, 1928), report the case of a boy, aged 6, who presented all the symptoms of peritonitis. The ascites increased rapidly. Abdominal paracentesis revealed a yellowish cloudy fluid, containing small flakes of fibrinous material, large numbers of polymorphonuclears, and numerous gram-positive diplostreptococci. These organisms were mistaken for pneumococci. The leukocyte count at the time was 41,000, with 90 per cent polymorphonuclears. The child was treated with pneumococcus antibody solution intravenously and intraperitoneally. Death occurred five days later. Altogether the abdomen was tapped four times in two days, and each time microscopic examination of the exudate revealed the same organism in large numbers. The organism was isolated in pure culture from the first specimen of exudate. In the peritoneal exudate, the organism appears as a comparatively large, gram-positive coccus. This coccus is lance-shaped like the pneumococcus and is arranged in pairs and in chains of from four to eight cocci. The chains do not resemble streptococci because they are composed of diplococci joined together rather than a series of round balls. These longer chains are not duplicated in artificial mediums, although shorter chains of two diplococci are often seen in broth. As a rule, the germ grows in broth as a lanceolate diplococcus looking much like the pneumococcus. The cocci from the agar plate are somewhat longer and narrower than in broth and have a decided tendency to arrange themselves in pairs with their long axes parallel. Pleomorphism has not been noted to any important degree in the cultures. The authors have never observed capsules either in pathologic fluids or in culture. The organism is not bile soluble, thus being definitely separated from the pneumococcus. The pathologist considered that the peritonitis in this case was secondary to an acute exacerbation of a chronic appendicitis. This would account for the presence of an organism which is normally an inhabitant of the intestinal tract. This case is important in that it emphasizes the need for accurate diagnosis. There can be no doubt that this condition could be diagnosed many times if laboratory workers were on the lookout for it. The common mistake is, no doubt, the one that occured at first in the case reported, namely, the tendency to regard the germ as an atypical pneumococcus on account of its morphology. The possible presence of this germ should be considered in cases of so-called pneumococcus peritonitis and streptococcoccus peritonitis. As quick a differentiating point as any from the laboratory point of view is the heat resisting character of the enterococcus. After once having seen the growth on blood agar, one should not have any difficulty in differentiating it from a streptococcus.

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